

## Preparation and characterization of PbSe thin films by chemical bath deposition

### ABSTRACT

PbSe thin films were grown onto glass substrates by chemical bath deposition method. Structure and surface morphology of thin films were characterized by X-ray diffraction and scanning electron microscopy. The band gap energy and type of optical transition were determined from optical absorbance data. The deposition parameters were optimized to obtain good quality of thin films. X-ray diffraction indicates that the films have cubic structure. The SEM micrograph showed the films do not cover the glass substrate completely and consisted of irregular shaped grains. The films show good optical properties with high absorption in the visible region and the band gap value was estimated to be 1.3 eV.

**Keyword:** Chemical bath deposition; Lead selenide; X-ray diffraction; Thin films